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Recent Vertebrate Animal Bones (Animalia: Vertebrata) from Yubileyna Cave (Rhodopes Mountain, South Bulgaria)

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Abstract. Excavations (area of 50 x 50 cm and 20 cm depth) at about 15 m from the cave entrance revealed various vertebrate fauna. As individual numbers the mammals and the frogs predominated as bone remains. All other taxa were with low percent of occurrence. The troglloxenic species dominated than the troglphilic. Considering the cave characteristics and the taxonomical identity of the bones we proposed two main ways of bone accumulation in this cave in recent times.

Key words: vertebrate faunal remains, bone findings, cave fauna, Yubileyna cave, Bulgaria.

Introduction

In the summary on the cave fauna of Bulgaria, BERON (1994) reported 48 species of vertebrate animals: 3 fish, 9 amphibian, 2 reptilian, 5 avian, and 9 mammalian species. Most of them are troglloxenes, occasionally met in the caves, as only the bats were troglphilic ones. Troglbiotic vertebrates are not known to live in the Bulgarian caves till now.

In spite of the long list of vertebrate animals found in caves in Bulgaria available many of the caves are still insufficiently studied according their recent and fossil fauna (BERON *et al.*, 2009). In the present paper we represent first data for recent vertebrates found as bone material in Yubileyna cave.

Material and methods

The study was carried out on 04.09.2010 in Yubileyna cave (West Rhodopes Mountain, south of Peshtera town).

Excavations (area of 50 x 50 cm and 20 cm depth) at about 15 m from the cave entrance revealed various vertebrate fauna. Faunal remains were extracted through washing and sieving of recent soil deposits mixed with gravel. The bones were considered as recent by two criteria: 1. they were found in soil and humus deposits near the cave entrance, and 2. the organic components as for example fat and marrow of the bones were visibly not completely removed, and the bones were not filled with calcite. They were identified through a reference collection of skulls and bones of the Faculty of Biology, Plovdiv University. The minimal number of individuals was considered according the number of the left or right pair bones, specimen's size classes and their age groups. The animals were divided also according their ecological groups considering their relation with the life in caves: troglphilic and troglloxenic considering BERON (1994).

Results and Discussion

The list of the identified specimens is given in Table 1. As individual number the mammals predominated from which the rodent remains were mostly found (34.29% from all vertebrate individuals identified) followed by the bats (22.86%). The frogs also had high numbers as bone remains (11.43%) which were and the only amphibian representatives in the sample. All other taxa were with low numbers and occurrence below 10%.

The troglonec species dominated than the troglophilic (the bats) (N = 27, 77.4% and N = 8, 22.9%, respectively).

Considering the fact that Yubileyna cave is a horizontal one we accept that there were two main ways of accumulation of bones into it:

1. Bones from animals which used to live in the cave and died inside by different reasons. We suppose this way of bone accumulation was typical for the bats and for the wintering in the cave amphibians and reptiles.

2. Bringing bone material from outside by predators. During our research in the cave we found excrements of Rock Marten (*Martes foina* Erxl.) which is one of the most frequently registered carnivore in the Bulgarian caves (BERON, 1994), and possibly this species was contributed for some bone accumulations in Yubileyna as these one of fish, hare and rodents. Bringing of bones by owl pellets is not convincing because the cave has a relatively low entrance which is not suitable for nesting sites of such birds.

Table 1. Recent vertebrate animals found in the Yubileyna cave as bone remains.

Taxon	MNI	%	Find
Pisces, Osteichthyes sp.	2	5.71	<i>cranium fragment</i>
Total Pisces, Osteichthyes	2	5.71	
Ranidae sp.	3	8.57	<i>vertebrae, long bones</i>
<i>Bufo bufo</i> L., 1758	1	2.86	<i>os coxae</i>
Total Anura	4	11.43	
Serpentes sp.	2	5.71	<i>vertebrae, costae</i>
Total Serpentes	2	5.71	
Aves sp.	2	5.71	<i>falanx, long bones</i>
Total Aves	2	5.71	
<i>Talpa europea</i> (L., 1758)	2	5.71	<i>cranium fragment, long bones</i>
<i>Crocidura</i> sp.	1	2.86	<i>cranium fragment</i>
Insectivora	3	8.57	
<i>Rhinolophus ferrumequinum</i> (Schr., 1774)	2	5.71	<i>mandibulae</i>
<i>Myotis myotis</i> Bork., 1797	1	2.86	<i>cranium fragment</i>
<i>M. myotis/oxygnatus</i> (Mont., 1885)	3	8.57	<i>mandibulae</i>
Chiroptera sp.	2	5.71	<i>mandibulae</i>
Total Chiroptera	8	22.86	
<i>Lepus europeus</i> (Pall., 1778)	1	2.86	<i>molar</i>
Total Lagomorpha	1	2.86	
Muridae spp.	1	2.86	<i>mandibulae fragments</i>
Microtinae spp.	3	8.57	<i>mandibulae fragments</i>
Rodentia spp.	8	22.86	<i>incisivi, various bones</i>
Total Rodentia	12	34.29	
<i>Martes foina</i> (Erxl., 1777)	1	2.86	<i>femur fragment</i>
Total Carnivora	1	2.86	
Total Mammalia	25	71.43	
Total Vertebrata	35	100	

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